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REMARKS

In the Office Action dated February 25, 2004, claims 23-25 were rejected under 35 U.S.C. § 112, ¶ 2; claims 1-3, 5, 7, 9-11, and 23-27 were rejected under § 102 over U.S. Patent Publication No. 2002/0112150 A1 (Lawing); and claims 13-16, 19-21, and 28-35 were rejected under § 103 over U.S. Patent No. 5,948,101 (David) in view of Lawing.

REJECTIONS UNDER 35 U.S.C. § 112, ¶ 2

The terms "a parallel database system" and "starting database software components" in lines 2 and 3, respectively, of claim 23 were rejected as lacking antecedent basis. Applicant respectfully disagrees that there is an antecedent problem for these claim terms. Claim 23 recites that the processing system introduced in claim 1 comprises a parallel database system. Thus, the term "a parallel database system" is being introduced in claim 23, and thus the antecedent basis problem noted by the Office Action does not exist. Also, claim 23 recites that starting the selected software components (recited in claim 1) comprises starting database software components. Thus, what claim 23 recites is that the selected software components includes the database software components. An antecedent basis with respect to the term "database software components" also does not exist.

The terms "the database software components" and "process database queries" of claim 24 were rejected. The term "database software components" of claim 24 finds support in claim 23 (note that claim 24 depends from claim 23). Thus, the term "database software components" as recited in claim 24 does have antecedent support. Also, claim 24 recites that a query coordinator is started in each node to process database queries. The term "database queries" is introduced in claim 24, so an antecedent basis problem does not exist with respect to the term "database queries."

The term "database software components" recited in claim 25 finds support in claim 23.

In view of the foregoing, it is respectfully submitted that the § 112 rejections be withdrawn.

REJECTIONS UNDER 35 U.S.C. §§ 102 AND 103

Independent claim 1 was rejected as being anticipated by Lawing. Applicant respectfully submits that Lawing does not disclose the subject matter of claim 1. The Office Action cited to the login routine 20 depicted in Figures 1 and 2 of Lawing and ¶ [0024] on page 3 of Lawing as teaching the act of "launching a start routine in a first one of the nodes in response to the request" recited in claim 1. The Office Action then cited to the startup routine 22 in Figures 1 and 2 and ¶ [0024] of Lawing as teaching the act of "the start routine causing a service to be invoked in each of the nodes." It is respectfully submitted that the Lawing does not disclose the subject matter of claim 1.

Note that a copy of the login routine 20 is provided by the network host 12 to each of the network clients 14, 16, and 18 shown in Figure 1 of Lawing. Lawing, ¶ [0022]. While the login routine 20 resides on the network host 12, a network administrator can perform various definitions with respect to the login routine 20. Lawing, ¶ [0022]. However, note that the login routine 20 is *not* launched in the network host 12. Rather, the login routine 20 of Lawing is sent to the network clients 14, 16, and 18. It is at the network clients 14, 16, and 18 that a user can use a login screen 32 (at each network client) to *initiate* the login routine 20. Lawing, ¶ [0024]. Each instance of a local login routine 20 and a respective network client invokes a startup routine 22 to be initiated. Therefore, instead of *a* start routine (launched in a first one of the nodes) to cause a service to be invoked in each of the nodes, Lawing describes multiple login routines 20 (initiated in corresponding network clients) to invoke corresponding startup routines 22 (in corresponding network clients). Therefore, the element of claim 1 that recites "*the* start routine causing a service to be invoked in *each* of the nodes" cannot be satisfied by Lawing.

In view of the foregoing, it is respectfully submitted that Lawing does not anticipate claim 1. Claims dependent from claim 1 are allowable for at least the same reasons as for claim 1.

Moreover, with respect to dependent claim 3, Lawing does not disclose invoking services with a WINDOWS® service control manager module. The Office Action cited to ¶ [0030] on page 3 and Figure 4 of Lawing as teaching this element. Applicant notes

that ¶ [0030] makes no mention of invoking services with a WINDOWS® service control manager module. Figure 4 also does not disclose invoking services with a WINDOWS® service control manager module.

With respect to claim 9, which depends from claim 1, Lawing also does not disclose that the first one of the nodes is a master node, where launching the start routine is performed in the master node. The Office Action cited to ¶ [0022] and the network host 12 in Figure 1 as teaching this feature of claim 9. As discussed above, the login routine 20 of Lawing is not launched in the network host 12, but rather, is copied to a network client and executed in a network client. Therefore, the element "wherein launching the start routine is performed in the master node" of claim 9 cannot be satisfied by Lawing.

With respect to claim 23, which depends from claim 1, Lawing does not disclose starting database software components. The Office Action has apparently ignored the term "database" recited in the claim--Applicant respectfully submits that this is improper. All claim elements must be given patentable weight. Therefore, the term "database software components" must be considered. Lawing fails to disclose starting database software components as recited in claim 23.

With respect to claim 26 (which depends from claim 1), the Office Action cited to ¶¶ [0030] and [0035] and Figure 4 of Lawing as disclosing that each service monitors a status of a corresponding software component. Paragraph [0030] of Lawing refers to a startup routine 22 to determine the type of operating system loaded on a network client. Paragraph [0035] of Lawing refers to the login routine 20 and startup routine 22 coordinating with workstations through a layered software environment. However, no mention is made whatsoever in ¶¶ [0030] and [0035], nor in Figure 4, of each service monitoring a status of a corresponding software component.

With respect to dependent claim 27, which depends form claim 1, the Office Action cited to ¶ [0038] refers to tools for responding to unexpected or urgent network problems. However, no mention is made in ¶ [0038] of "each service monitoring for termination of a corresponding software components." Furthermore, ¶ [0038] does not

appear in the parent Application Serial No. 09/177,086,[1] filed October 22, 1998, now abandoned. Lawing is a CIP of 09/177,086. Note that the filing date of Lawing is *after* the filing date of the present application. Therefore, the § 102(e) date relied upon by the Office Action is the filing date of the parent 09/177,086 application. The parent 09/177,086 application discloses less subject matter than Lawing. In fact, at least Figures 5, 6A, 6B and ¶¶ [0035]-[0059] of Lawing do not appear in the parent 09/177,086 application. Paragraph [0038] is subject matter disclosed in Lawing but not in the parent 09/177,086 application. Therefore, the subject matter of ¶ [0038] is entitled only to the February 15, 2002 filing date of Lawing, which is *after* the filing date of the present application.

Withdrawal of the § 102 rejection of claim 27 is respectfully requested, as the portion of Lawing relied upon by the Office Action to reject claim 27 does not constitute prior art with respect to claim 27. Nor does Lawing disclose the subject matter of claim 27 in any event.

Independent claim 13 was rejected as being obvious over David and Lawing. The Office Action asserted that David discloses a database system having a plurality of nodes, and software components executable in corresponding nodes, the software components comprising a query coordinator in *each* node to process database queries. It is respectfully submitted that David does not disclose software components comprising a query coordinator in *each* node to process database queries. What claim 13 recites is a plurality of query coordinators in respective nodes, which clearly is not disclosed by David. The Office Action cited to OMCLBSVR 31 depicted in Figure 3 of David as being the query coordinator. However, note that the OMCLBSVR 31 module exists only in the server 17. There is no indication that OMCLBSVR is in *each* of a plurality of nodes. The OMCLBSVR 31 module does not exist in user computer 47, open modulator controller (OMC) 37, or network attached computers (CP) 11. Therefore, even if David and Lawing can be properly combined, the hypothetical combination of David and Lawing does not teach or suggest *all* elements of claim 13.

[1] A copy of the 09/177,086 application is attached for the convenience of the Examiner.

Moreover, contrary the assertion in the Office Action, Lawing does not disclose or suggest a start procedure executable in a first one of the nodes to invoke the services in the respective nodes through a manager module. The Office Action cited ¶ [0030] and Figure 4 of Lawing as teaching this element. There is no teaching whatsoever, in ¶ [0030] or Figure 4, of any routine, including the startup routine 22 or the launch manager 24, that is executable in a first one of the nodes to invoke services in respective nodes through the manager module. Note that the startup routine 22 and launch manager 24 are present in *each* of the network clients 14, 16, and 18 of Lawing. Therefore, Lawing does not teach *a* start procedure to invoke services in respective nodes through the manager module.

For this additional reason, the hypothetical combination of David and Lawing does not teach and suggest *all* elements of claim 13.

In view of the foregoing, a *prima facie* case of obviousness has not been established with respect to claim 13, and all claims dependent therefrom.

Moreover, with respect to dependent claim 15, which depends from claim 13, contrary to the assertion in the Office Action, Lawing fails to disclose or suggest that the manager module comprises a WINDOWS® service control manager. The Office Action cited to ¶ [0030] and Figure 4 of Lawing as teaching this feature. Applicant respectfully submits that ¶ [0030] and Figure 4 of Lawing do not disclose or suggest that a manager module comprises a WINDOWS® service control manager.

With respect to claim 28, which depends from claim 13, the Office Action cited to ¶ [0049] of Lawing as teaching software components comprising a data server in each node to control access to data in a storage. Applicant respectfully submits that ¶ [0049] of Lawing does not disclose or suggest this feature of claim 28. Moreover, ¶ [0049] does not exist in the parent 09/177,086 application. Therefore, the portion of Lawing cited by the Office Action against claim 28 does not constitute prior art against claim 28.

This is true also of claim 29, since the Office Action cited ¶ [0048], which does not exist in the parent 09/177,086 application. Also, ¶ [0048] refers to a text tool 224 that allows a workstation to prevent start tool 20 from running one or more configuration routines on a workstation. However, there is no indication that the text tool 224 monitors for termination of a corresponding query coordinator.

With respect to claim 30, which depends from claim 13, contrary to the assertion in the Office Action, Lawing fails to disclose a start procedure that is invoked in response to a request to start a *database* application. Paragraph [0030] and Figure 4 of Lawing, cited by the Office Action, makes no mention of invoking a start procedure in response to a request to start a *database application.*

Independent claim 20 was also rejected over the asserted combination of David and Lawing. Applicant respectfully submits that claim 20 is not obvious over David and Lawing. The Office Action refers to the OMCLBSVR module 31 of David as disclosing the database software components executable in corresponding nodes. Note that the OMCLBSVR module 31 executes only in the server 17, and not in any other node.

The Office Action conceded that David does not disclose the recited manager module of claim 20. However, reliance was made by the Office Action on Lawing as disclosing this element. The Office Action cited to ¶¶ [0030] and [0035] and Figure 4 of Lawing as disclosing the manager module of claim 20. Applicant respectfully disagrees, as ¶ [0030] refers to a startup routine 22 (which is locally executed in each network client disclosed in Lawing) performing various tasks in the network client. Paragraph [0035] describes a login routine and start-up routine that coordinate with workstations through a layered software environment. However, no mention is made in ¶ [0035] of a manager module that is executable to control database software components and to enable a monitoring module to monitor statuses of database software components in the nodes.

In view of the foregoing, even if David and Lawing can be properly combined, the hypothetical combination of David and Lawing does not teach or suggest each and every element of claim 20. Therefore, a *prima facie* case of obviousness has not been established with respect to claim 20.

Moreover, ¶ [0035] is not found in the parent 09/177,086 application. Therefore, ¶ [0035] does not constitute prior art against the present invention. To the extent that the Office Action has relied upon a disclosure of Lawing that does not predate the priority date of the present application, it is respectfully submitted that the rejection of claim 20 is defective.

Independent claim 21 was also rejected over the combination of David and Lawing. Applicant respectfully submits that claim 21 is also not disclosed or suggested

by the combination of references. The Office Action conceded that David does not disclose issuing requests, from a start routine launched in a first one of the nodes, to respective nodes; and in response to the requests, invoking services in respective nodes to start database software components. Lawing was relied upon as teaching this feature. As discussed above in connection with claim 1, the login routine 20 of Lawing is launched in individual network clients, and does not constitute *a* start routine that is able to issue requests to plural nodes of a database system. Therefore, even if David can be combined with Lawing, the hypothetical combination of David and Lawing does not teach or suggest every element of claim 21. Claims dependent from claim 21 are allowable for at least the same reasons as for claim 21.

Moreover, with respect to claim 31, which depends from claim 21, the Office Action conceded that David does not disclose starting a query coordinator to process database queries and a data server to control access of data in storage in each node. However, reliance was made on Lawing as teaching this element. Applicant respectfully submits that Lawing makes absolutely no mention whatsoever of starting a query coordinator to process database queries. Therefore, the hypothetical combination of David and Lawing does not disclose or suggest the subject matter of claim 31.

Also, ¶ [0049] of Lawing was cited by the Office Action as teaching an element of claim 31. Applicant notes that ¶ [0049] does not appear in the parent 09/177,086 application of Lawing. Therefore, ¶ [0049] does not constitute prior art against the present invention.

With respect to claim 32, which depends from claim 21, the Office Action conceded that David does not disclose each service to monitor for termination of a corresponding *database software component.* Reliance was made on Lawing and disclosing this feature. However, Applicant notes that Lawing does not teach or suggest a service to monitor for termination of a *database* software component.

Also, ¶ [0038] of Lawing, cited by the Office Action as teaching an element of claim 32, does not constitute prior art against the present invention, since ¶ [0038] does not appear in the parent 09/177,086 application.

Independent claim 33 is also not disclosed or suggested by David and Lawing for reasons similar to those for claim 21.

Moreover, with respect to dependent claim 34, which depends from claim 33, contrary to the assertion made in the Office Action, David does not disclose database software components comprising a query coordinator in each node to process database queries, and a data server in each node to control access of a storage. The Office Action identified the OMCLBSVR module 31 and column 4, lines 32-67, of David, as disclosing the subject matter of claim 34. However, note that the OMCLBSVR module 31 manages the distribution of "soft" Letterbugs to OMCs. David, 4:16-20. This does not constitute a query coordinator *in each node to process database queries*. Also, the cited column 4 passage of David does not disclose or suggest a query coordinator in each node to process database queries. In view of the foregoing, it is respectfully that a *prima facie* case of obviousness has not been established with respect to claim 34.

In view of the foregoing, all claims are in condition for allowance, which action is respectfully requested. The Commissioner is authorized to charge any additional fees, including extension of time fees, and/or credit any overpayment to Deposit Account No. 50-1673 (9172).

Respectfully submitted,

Date: April 20, 2004

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Subcla	ISSUE CLASSIFICA
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U.S. UTILITY PATENT APPLICATION

O.I.P.E.	PATENT DATE
SCANNED 1/6/00 Q.A.	

SECTOR	CLASS	SUBCLASS	ART UNIT	EXAMINER
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(FACE)

METHOD AND SYSTEM FOR CENTRAL MANAGEMENT OF A COMPUTER NETWORK TECHNICAL FIELD

TECHNICAL FIELD OF THE INVENTION

The present invention relates generally to computer networks, and more particularly to central management of a computer network configuration and start-up.

BACKGROUND OF THE INVENTION

Computer networks have changed the way the world does business. For instance, businesses employing computer networks are able to enhance the efficiency of their employees by increasing the ease with which information can flow throughout the business. However, the improved efficiency provided by computer networks has come at a price. Businesses have invested considerable capital in the hardware needed to put their computer networks into place, including the purchase of personal computers capable of performing at designed levels, and the purchase of hardware and wiring needed to interconnect the personal computers. Businesses have also invested considerable capital in purchasing and maintaining software utilities needed for the proper functioning of the computer networks as well as software needed by employees to perform business functions. In addition to the significant capital investments in hardware and software for their computer networks, businesses also spend considerable amounts of money and resources for hiring and retaining personnel to perform maintenance on the network hardware and software.

One difficulty in setting up and maintaining a computer network, whether as a local area network or a wide area network, is the diversity in the types of personal computers and personal computer components that can be interfaced with a network. For instance, personal computers interfaced with a network can operate with different types of processors, different hardware configurations, and different drivers for hardware components on the computer. Another difficulty is the diversity in the types of programs that each personal computer interfaced with a network can use. For instance, each personal computer can operate with different computer operating systems, such as Windows, Windows NT, OS2, Unix, or other types of personal operating systems. These difficulties are compounded by the piecemeal fashion in which computer networks are frequently assembled. For instance, as a business grows, the business typically adds additional components and software to existing networks. Each addition can include new hardware or software, including new versions of existing hardware and software, which may not be completely compatible with existing systems.

The difficulty in configuring personal computers to interface with a computer network are further compounded by other factors common in the corporate network computing environment. For instance, personal computers interfaced with a network are frequently dispersed geographically across a business site or even across the country or world. Thus, in order to configure, manage and operate personal computers interfaced with a network, computer information systems personnel must travel to each computer as needed. This inefficiency increases the labor costs associated with operating the computer network. Another difficulty that compounds the

operation and maintenance of personal computers interfaced with a computer network is the piecemeal fashion in which computer networks are frequently assembled. For instance, as a business adds or loses personnel, computers can be added or removed from the network. Each time a computer is added or removed, additional information systems labor is required to configure the computer and network as needed. In businesses with a high turnover or businesses with a mobile work force, frequent changes can result in high levels of labor expenses as technicians physically walk to each individual personal computer to perform software installation and distribution, configuration management, and problem resolution.

SUMMARY OF THE INVENTION

Therefore a need has arisen for a method and system which allow for efficient central management of a network.

In accordance with the present invention a method and system for centrally managing network clients interfaced with a network host is provided that substantially eliminates or reduces disadvantages and problems associated with previously developed techniques for managing a network. Initiation of a login script at a network client automatically calls up a login routine and a start-up routine. The login routine and start-up routine determine the operating system of the network client and manages the start up of the network client according to the operating system determination.

More specifically, initiation of a login script at a network client can automatically call a login routine to operationally manage the configuration of the network client. For instance, the login routine can gather

system information and create standard directories for the network client. The login routine can then determine the operating system of the network client, and, based upon the operating system determination, can perform configuration management, including the installation of default applications, the management of start up files, setting DNS information, setting up consistent desktop configurations, running a virus scan, running monthly maintenance such as a scan disk, turning on system policies, and providing a computer information report. The login script can call the login routine from the network host, or can call the configuration management engine from local memory of the network client.

One function of the login routine can be to call the start-up routine from either the network host or from local memory of the network client. The start-up routine can determine the operating system of the network client, and based upon the operating system determination, can direct the network client to install predetermined local utilities and to load predetermined network utilities.

The start-up routine can interface with a launch manager to allow the user of a network client to establish launch manager values associated with predetermined standard utilities. The start-up routine can read the launch manager values for the network client to allow the start-up routine to install predetermined local utilities according to the launch manager values set by the launch manager. When the start-up routine is called, it looks for a start-up switch to determine if the network client is in its initial boot or has already been booted up. If the network client is in its initial boot, the start-up routine performs start-up management steps. If, instead, the network client is already booted up based upon the start-up switch determination, then the

launch manager will determine the operating system of the network client and allow the network client user to establish launch manager values.

The present invention provides important technical advantages. For instance, the present invention allows a network owner to establish computing standards within the network that can allow the network to reliably meet performance needs of the network's users. The present invention allows network administrators to efficiently orchestrate an almost infinite combination of hardware, software, operating systems and protocols with centralized management.

Another important technical advantage of the present invention is that it allows central management of a large number of personal computers that are interfaced with a network. Central management allows the network owners to reduce maintenance and support costs by reducing the need to have technicians physically visit each personal computer associated with the network when software installation, distribution, problem resolution, configuration management and other maintenance functions are needed to be performed.

Another important technical advantage of the present invention is that it reduces the time needed to resolve problems and upgrade network applications by the distribution of patches and configuration upgrades, thus reducing the disruption to business functions.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the present invention advantages thereof may be acquired by referring to the following description taken in conjunction with the accompanying drawings in which like reference numbers indicate like features and wherein:

FIGURE 1 depicts a schematic overview of a centrally managed network according to the present invention;

FIGURE 2 depicts an exemplary flow diagram of a login by a personal computer to a network configured according to the present invention;

FIGURE 3 depicts an exemplary flow diagram of a login routine; and

FIGURE 4 depicts an exemplary flow diagram of a start-up routine and launch manager.

DETAILED DESCRIPTION OF THE INVENTION

Preferred embodiments of the present invention are illustrated in the figures, like numerals being used to refer to like and corresponding parts of the various drawings.

The present invention uses central management of network assets to simplify network deployment, maintenance and support. A network administrator can globally manage and resolve problems on multiple workstations from one central management station. A login routine can set and maintain network and personal computer configuration, can initiate virus scanning, and can initiate system hardware and software checks and maintenance. A launch manager can control programs executed by the startup routine at login. These tools can significantly reduce the labor required to manage the workstations in local area networks and wide area networks, can reduce the disruption that can result from operating system and application upgrades, can provide for timely problem resolution through the distribution of patches and configuration upgrades, and can reduce delivery time for applications setup and installation.

Referring now to FIGURE 1, a simplified overview of a computer network 10, having a network host 12 and

plural network clients 14, 16 and 18, is depicted. Computer network 10 can be either a local area network or a wide area network. Network host 12 can be any Intel-based or compatible file server running a NetWare or Microsoft NT Operating System having sufficient computing capacity to support plural network clients. Network clients 14, 16 and 18 can be any Intel-based or compatible computer architecture running a Microsoft Operating System, such as personal computers using IBM compatible processors. In alternative embodiments, a wide variety of network configurations could be supported by the present invention, including combinations of local area and wide area networks interfaced with each other, networks having multiple hosts, and networks having a wide variety and number of clients.

A login routine 20 resides on network host 12, which is operational to execute login routine 20 on network clients during login by the clients to the network host. A network administrator 22 interfaced with network host 12 can maintain and update login routine 20 as needed. In this way, login routine 20 can set and maintain network and network client configuration and engage policy information. For instance, network administrator 22 can define default utilities so that login routine 20 can direct installation on network clients. Network administrator 22 can also define hardware and software checks and system maintenance functions within login routine 20. For instance, network administrator 22 can define a trigger for virus scanning, such as at each initial boot, and a schedule to run scan disk and defrag programs such as at predetermined monthly intervals. In an alternative embodiment, network administrator 22 can establish parameters for login routine 20 and can then

direct network host 12 to send login routine 20 to reside on network clients 14, 16 and 18.

A startup routine 22 and launch manager 24 reside on each network client 14, 16 and 18. Startup routine 22 and launch manager 24 can be installed in each network client by login routine 20. In an alternative embodiment, startup routine 22 and launch manager 24 can reside on network host 12. Startup routine 22 provides boot-up control of its network clients and allows the network client to run applications based upon predefined configuration parameters. Startup routine 22 directs the network client to install predetermined local utilities and to execute predetermined network utilities. A user of a network client can select the predefined local utilities executed by startup routine 22 by running launch manager 24. Launch manager 24 values can be stored in local memory of a network client, or can be stored in network memory associated with network host 12, to allow a network user to control the execution of predefined network utilities. Each network client 14, 16 and 18 operate under the control of an operating system 26, 28 and 30, respectively. Login routine 20 and startup routine 22 recognize and identify various types of operating systems, and configure and start-up each network client according to the type of operating system controlling each respective network client.

Referring now to FIGURE 2, a flow diagram of a login by a network client is depicted. A login screen 32 is presented to the network client, such as a login screen that can be provided by Novell networking software. A user can initiate the login routine at the local computer by providing personal security information. When the network client processes the network login script, login routine 20 is initiated. Login routine 20 determines if

the network client is operating under Windows 95 or Windows NT, and can invoke Microsoft system policies in accordance with those operating systems. On completion of configuration of the network client by login routine 20, systems policies take effect at step 36. Next, at step 38, the startup routine is executed. Startup routine 22 is initiated during the startup of the network client and is loaded into local memory of the network client. Startup routine 22 directs the network client to install predetermined local utilities and to load predetermined network utilities so that, at the end of management at step 40, the network client is available for use.

Referring now to FIGURE 3, a flow diagram depicts the steps performed by one embodiment of login routine 22 to manage the configuration of a network client. Login routine 22 is called at step 42 to start management of the network client configuration based upon the initiation of a NetWare login script. Login routine 22 gathers system information at step 44 and then creates standard directories at step 46.

Once standard directories have been created, login routine 22 determines the operating system of the network client by, at step 50, determining if Windows 95 is active on the network client. If Windows 95 is not active on the network client, then login routine 22 determines, at step 70, whether Windows NT is active on the network client. Next, if neither Windows 95 nor Windows NT are active on the network client, login routine 22 determines if the network client is a mobile data terminal, commonly used in field areas, that has a customized version of Windows 95. In alternative embodiments, login routine 22 can test for other operating systems, including Windows 3.1, newer versions

of Windows such as Windows 98, or alternative operating systems, such as OS2 or Unix. Login routine 22 then configures the network client according to the operating system on the network client. For instance, if login routine 22 determines the operating system of the network client is Windows 95, it will perform steps 54 through 68; if the login routine's operating system determination detects Windows NT, it will perform steps 74 through 88; and if the login routine's operating system determination detects a mobile data terminal (MDT), it will perform steps 94 through 108.

At steps 54, 74, and 94, login routine 22 triggers installation for the default applications to the network client, and at steps 56, 76, 96, login routine 22 manages start-up files for the network client. Login routine 22, at steps 60, 80 and 100, sets up a consistent desktop configuration. For instance, login routine 22 copies desktop icons for each Windows operating system, and copies a standard set of network programs compatible with each respective operating system. Also, at step 60, 80 and 100, login routine 22 installs launch manager 24 onto the network client so that the launch manager 24 can be called by the network client.

Finally, login routine 22 performs hardware and software checks and system maintenance. Login routine 22 at steps 62, 82 and 102 triggers a virus scan as one example of a software check. Login routine 22 implements preventive maintenance, such as scandisk or defrag, as depicted at step 64 and 104 as examples of hardware checks. Next, when the network client is running Windows 95 or Windows NT as the operating system, login routine 22 turns on system policies at step 66, 86 and 106, which can control the network client user's environment. Finally, login routine 22 provides computer information

reports at step 68, 88 and 108 before login routine 22 finishes at step 110.

Referring to FIGURE 2, once login routine 22 has managed the configuration of the network client at step 34, system policies can take effect at step 36. At step 38, initiation of the startup routine 22 installed by the configuration management system is begun.

Referring now to FIGURE 4, at step 120, startup routine 22 is called from local memory by the network client. Startup routine 22 looks for a command line startup switch at step 124 to determine if the operating system is on it initial boot up. If startup routine 22 fails to locate a command line switch at step 126, it will initiate launch manager 24 to allow the network client user to establish launch manager values. First, at step 128, launch manager 24 determines if Windows 95 is the operating system. If the operating system determination is yes, at step 130, startup routine 24 runs a launch manager for Windows 95. If the operating system determination at step 128 is no, then launch manager 24 determines at step 134 whether Windows NT is the operating system. If the operating system determination is yes, then, at step 136, launch manager 24 executes a launch manager for Windows NT. In summary, launch manager 24 allows a network client user to establish launch manager values if the startup routine is initiated other than during a network client boot-up.

If, at step 126, startup routine 22 finds a command line switch, then startup routine 22, at step 140, determines if Windows 95 is the operating system of the network client. If the operating system determination of step 140 is no, then startup routine 22 determines at step 160 if Windows NT is the operating system of the network client. If the operating system determination

of step 160 is no, then the startup routine proceeds to step 180 to determine if a mobile data terminal ("MDT") with a customized Windows 95 operating system is on the network client, as depicted at step 180.

Once startup routine 22 has made the operating system determination, it executes its own bootup routine, as depicted by steps 142 through 150, 162 through 170, and 182 through 190, respectively. At steps 142, 162, and 182, startup routine 22 reads the user section of the network registry for launch manager values created by the launch manager 24. The launch manager values allow a network client user to individualize his personal computer within the constraints of startup routine 22. Next, startup routine 22, at steps 144, 164 and 184 can install predetermined local utilities such as DESKMAN, TRAY EXPLORER, QUICK RES and TOOLBAR. Once the local utilities are installed, at steps 146, 166, and 186, startup routine 22 will determine if the client is connected to the network, if not, at step 148, 168 and 188, will end. Finally, at step 150, 170 and 190 respectively, the startup routine can load network utilities such as local area network information, GroupWise and WinINSTALL, before ending management of the network client at step 192.

In operation, a network administrator will deploy login routine 20 and startup routine 22 to the network according to predetermined computing standards. After the initial boot-up, a network client user can alter launch manager values to personalize his network client, within the constraints of startup routine 22 as determined by the network administrator. WinINSTALL is a software program available from Seagate Software, which will allow the network administrator to manage the installation of applications and to maintain the

integrity of standard applications across the network. For instance, when the network administrator wants to update an application, such as providing a new version or a patch to an application, the network administrator can use WinINSTALL to manage the installation of the update or patch. The LAN Information network utility can display system updates and messages in a graphical user interface at system boot-up. It provides communications to network client users regarding changes made by the system administrator.

Login routine 20 and startup routine 22 advantageously reduce the labor required to manage a local area network or a wide area network, by allowing central management of PCs interfaced with the network. This central management increases the satisfaction of network users by improving user interface, by improving communications between the administration of the network and the users, and by reducing the disruption required for operating system and application upgrades. Further, timely problem resolution is now possible through the distribution of patches and configuration upgrades, with reduced delivery time for application setup and install.

Although the present invention has been described in detail, it should be understood that various changes, substitutions and alterations can be made hereto without departing from the spirit and scope of the invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A method for centrally managing plural network clients interfaced with a network host, the method comprising the steps of:

initiating a login script at a network client;

using a start-up routine to determine the operating system of the network client; and

managing the start-up of the network client with the start-up routine according to the operating system of the network client.

2. The method according to Claim 1 wherein the managing the start-up step further comprises the steps of:

directing the network client to install predetermined local utilities; and

directing the network client to load predetermined network utilities.

3. The method according to Claim 1 further comprising the steps of:

initiating a login routine with the login script; and

using the login routine to initiate the start-up routine on the network client.

4. The method according to Claim 3 wherein the login routine resides on the network host.

5. The method according to Claim 3 wherein the start-up routine resides on the network client.

6. The method according to Claim 1 wherein the operating system comprises one of either Windows NT or Windows 95.

7. The method according to Claim 2 wherein the start-up routine installs the predetermined local utilities according to launch manager values.

8. The method according to Claim 7 further comprising the step of setting launch manager values with a launch manager.

9. A method for centrally managing plural network clients interfaced with a network host, the method comprising the steps of:

initiating a login script at a network client;

automatically calling a login routine, the login routine operationally managing the configuration of the network client;

using the login routine to install a start-up routine on the network client; and

automatically calling the start-up routine, the start-up routine operationally managing the start-up of the network client.

10. The method according to Claim 9 wherein the start-up routine manages the start-up of the network client by performing a method comprising the steps of:

directing the network client to install predetermined local utilities; and

directing the network client to load predetermined network utilities.

11. The method according to Claim 10 wherein the login routine manages the configuration of the network client by performing a method comprising the steps of:

gathering system information;

creating standard directories;

determining the operating system of the network client;

installing default applications; and
establishing a desktop configuration.

12. The method according to Claim 11 wherein the establishing a desktop configuration step comprises the step of installing the launch manager.

13. The method according to Claim 12 wherein the login routine resides on the network server.

14. The method according to Claim 12 wherein the launch manager resides on the network client.

15. The method according to Claim 12 wherein at least one network client has a Windows 95 operating system.

16. The method according to Claim 15 wherein at least one network client has a Windows NT operating system.

17. A system for central management of plural network clients interfaced with a network host, each network client having an operating system, the system comprising;

a start-up routine associated with each network client, the start-up routine operational to determine the network client operating system, and to direct network clients to install predetermined local utilities, the start-up routine further operational to direct network clients to load predetermined network utilities; and

a login routine associated with each network client, the login routine operational to determine the network

client operating system, and to direct network clients to establish a desktop configuration.

18. The system according to Claim 17 wherein the network comprises a local area network.

19. The system according to Claim 17 wherein the network comprises a wide area network.

20. The system according to Claim 17 further comprising a launch manager associated with each network client, the launch manager operational to define the local utilities installed on each network client by the start-up routine.

21. The system according to Claim 17 wherein each network client has an operating system, and wherein at least one network client has a Windows 95 operating system and at least one network client has a Windows NT operating system.

ABSTRACT OF THE DISCLOSURE

A method and system for central management of plural network clients interfaced with a network host, each network client automatically calling a login routine (20) and a start-up routine (22) associated with initiation of a login script at the network client. Configuration and start-up management can be based upon an operating system determination with several different operating systems, such as Windows 95 and Windows NT, deployed across the network. The login routine (20) can install the start-up routine (22) on the network client at login, allowing the start-up routine(22) to direct the network client to install predetermined local utilities and to

load predetermined network utilities. An associated launch manager (24) can establish launch manager values to allow a network user to individualize his network client within constraints defined by computing standards established through the login routine.

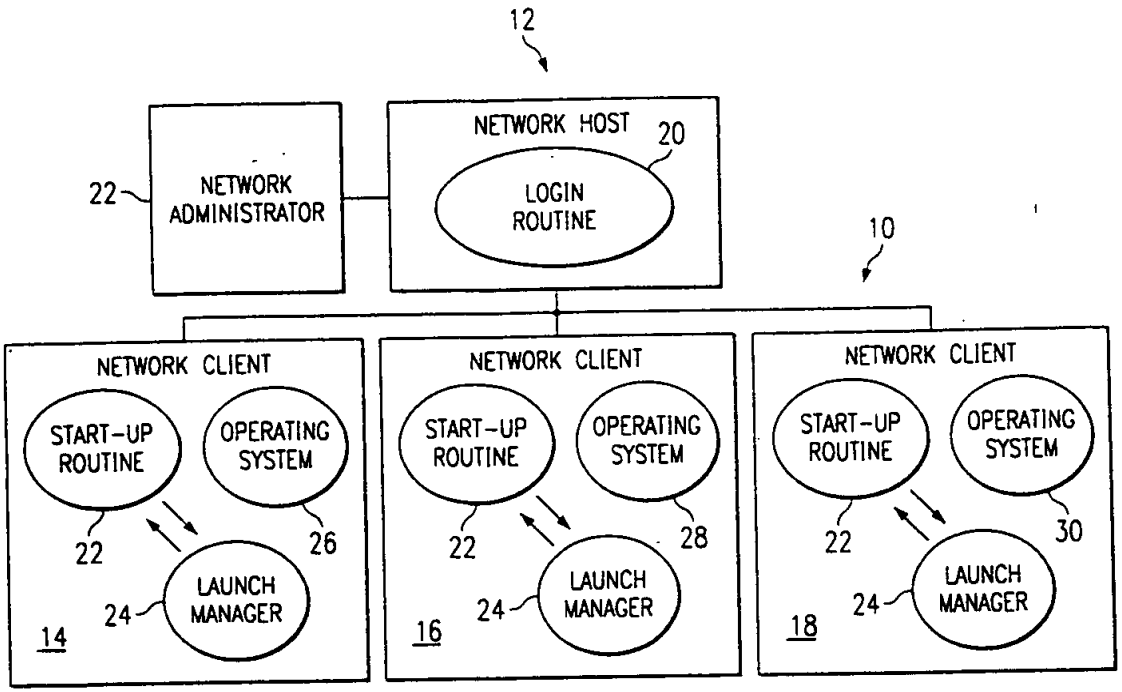

FIG. 1

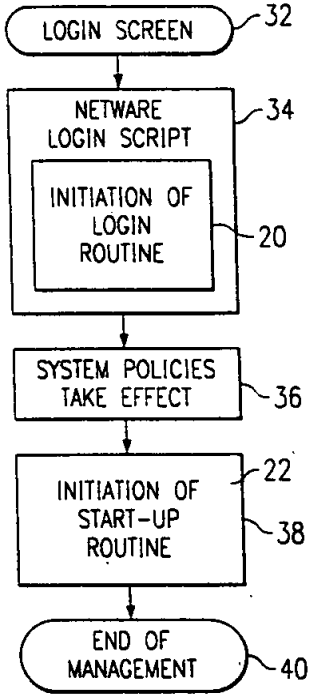

FIG. 2

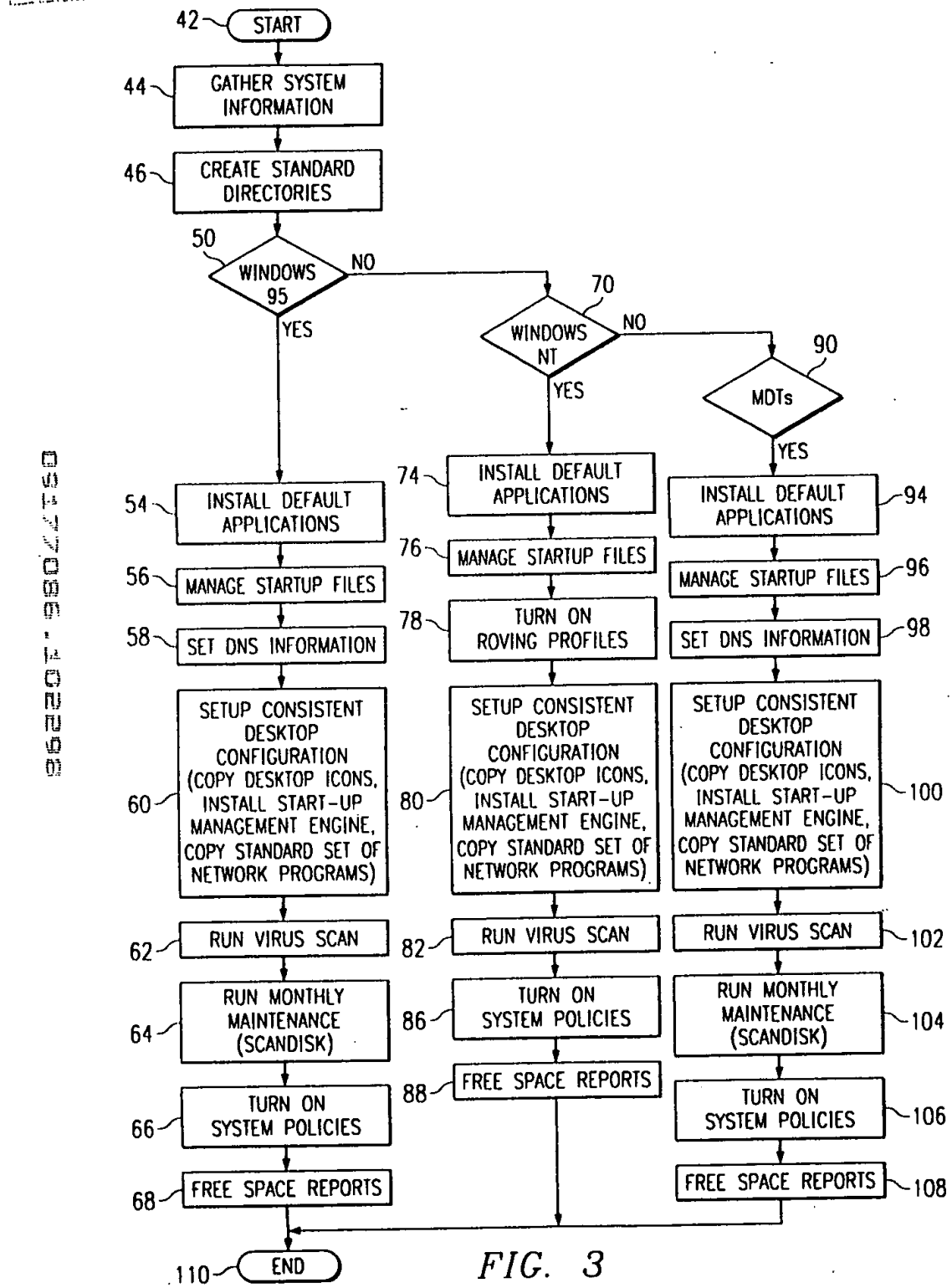

FIG. 3

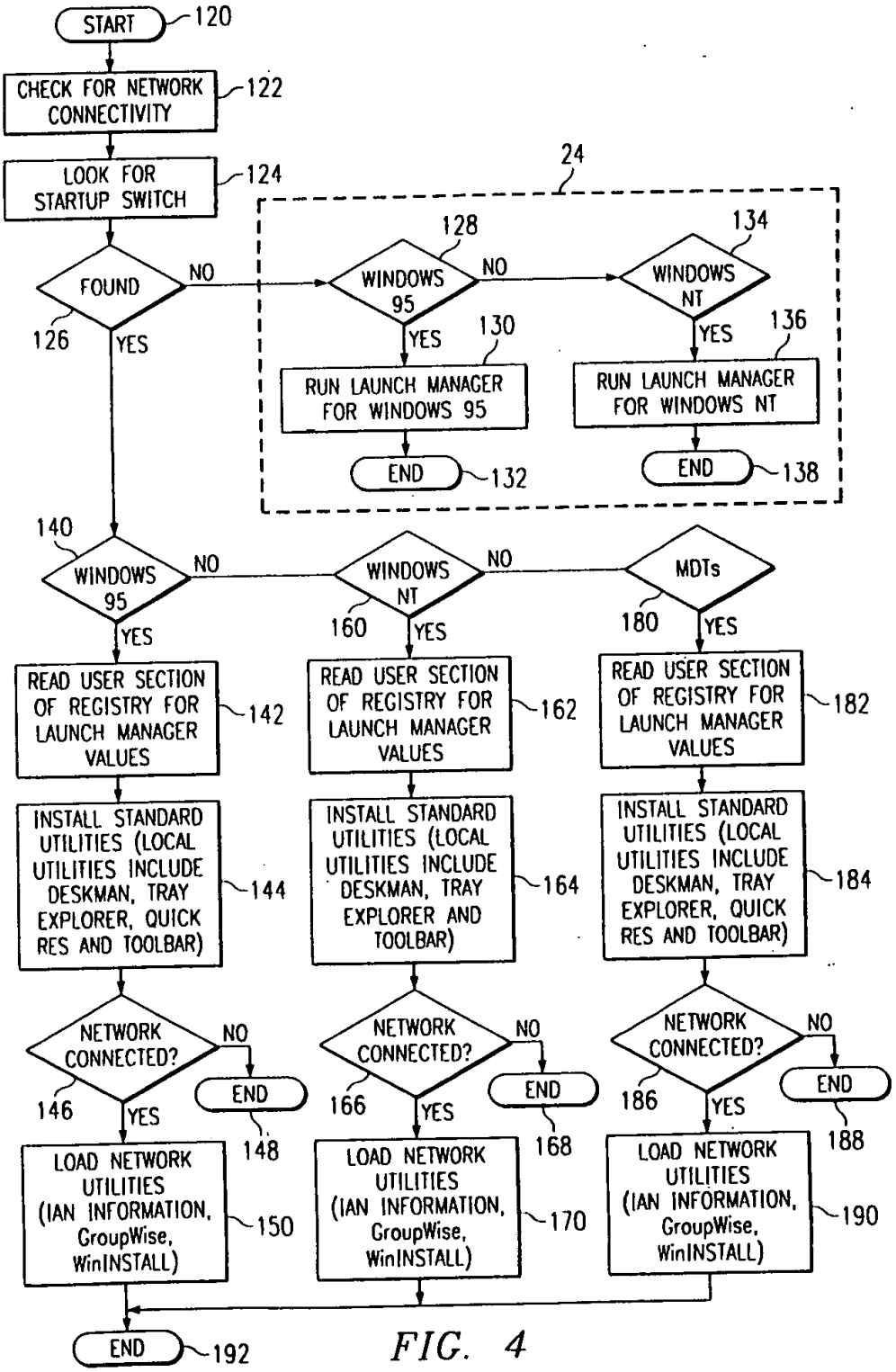

FIG. 4

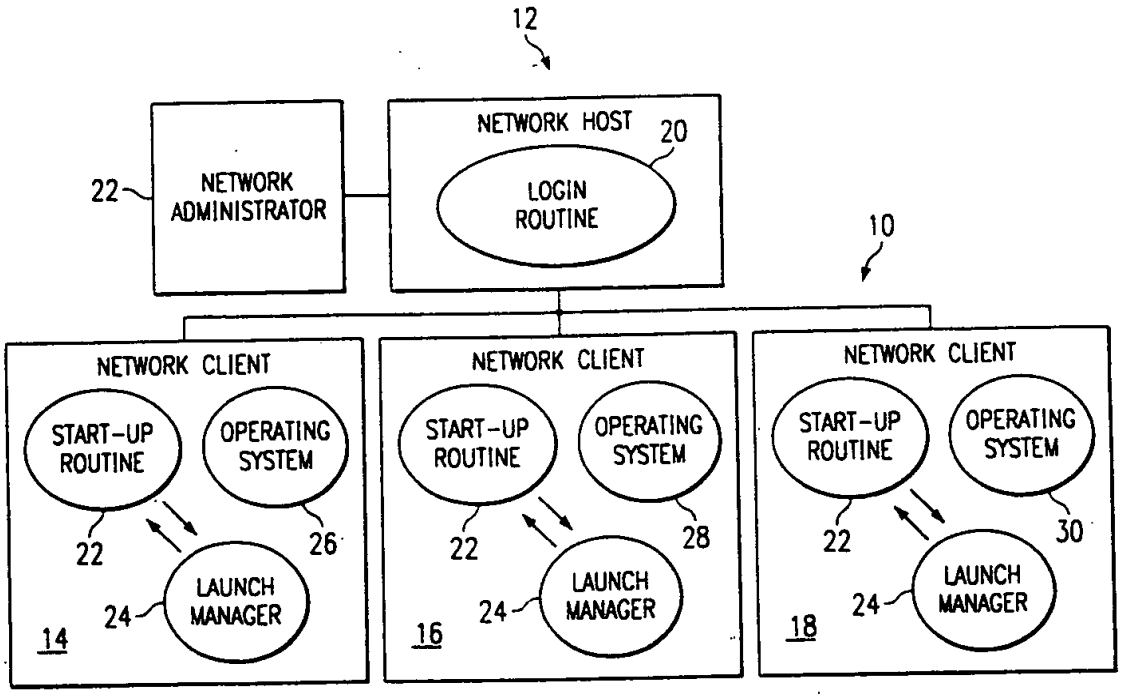

FIG. 1

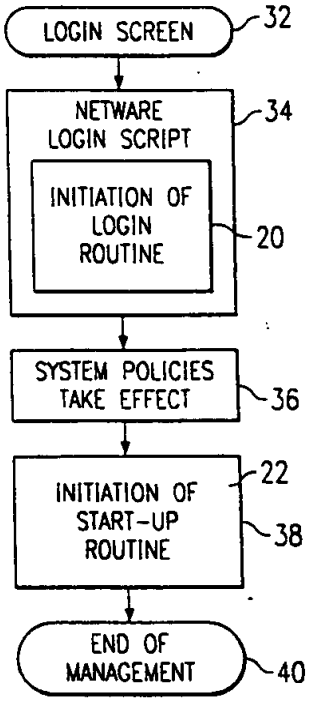

FIG. 2

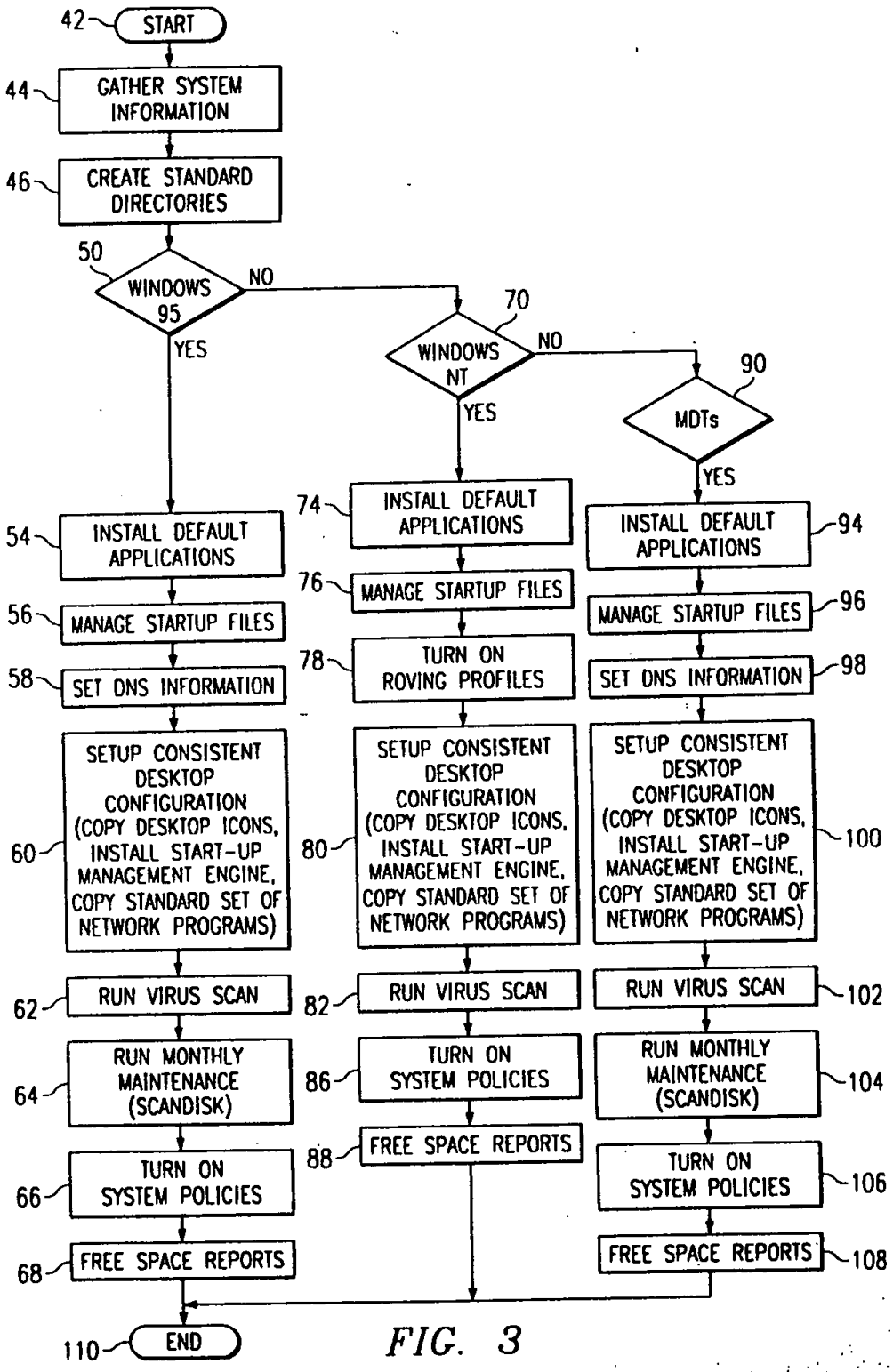

FIG. 3

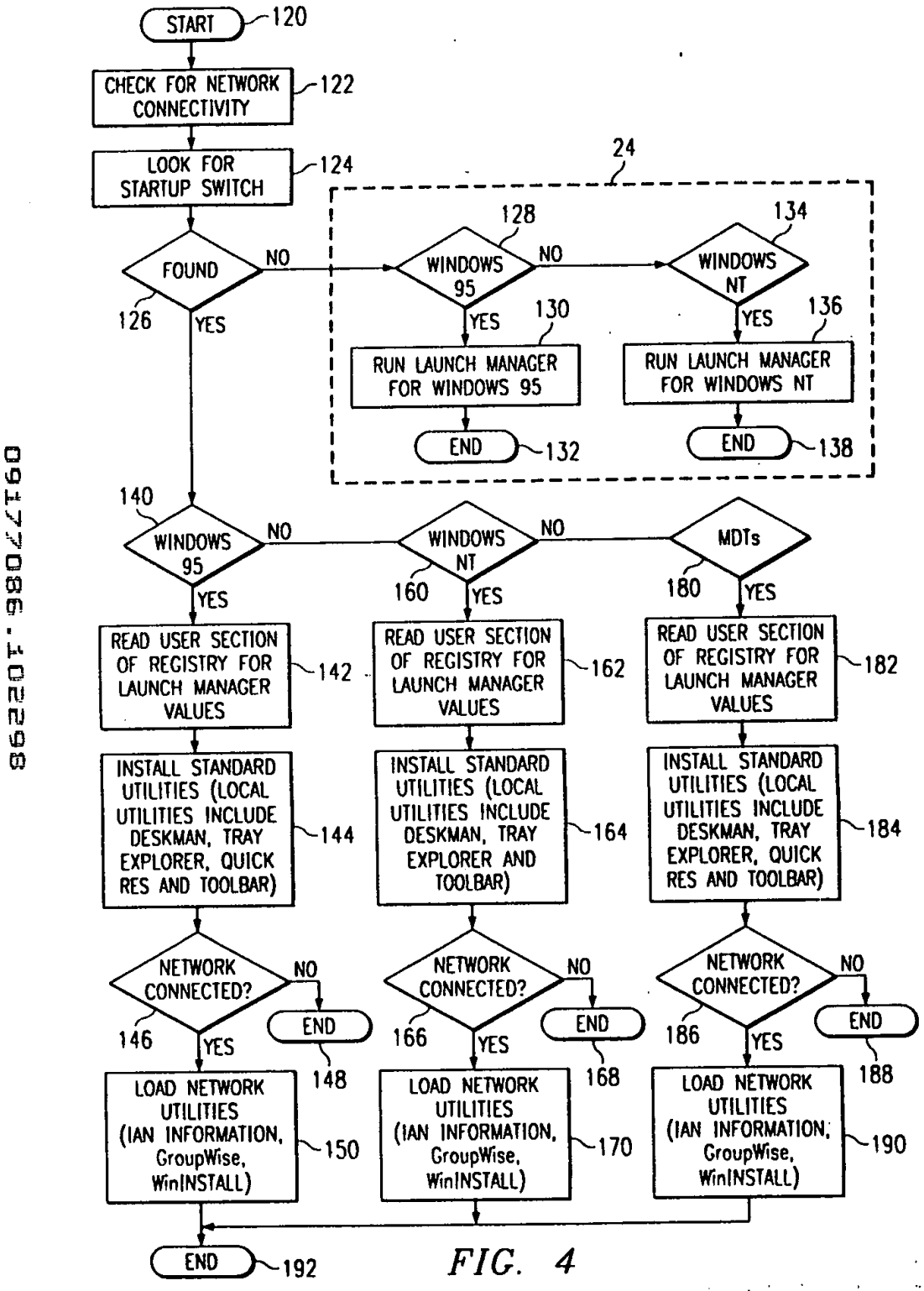

FIG. 4